General Services Administration | National Capital Region | Washington, DC 20407

Date : October 23, 1985

Reply to Attn of : Construction Engineer (WPCTC)

DATE OF LETTER
October 4, 1985

Subject: GS-11B-19067, Bid Package No. 3, Powerhouse Modifications, CIA Headquarters Expansion, Langley, Virginia

To :

MCI Constructors, Inc.
7649 Dynatech Court
P.O. Box 2786
Springfield, Virginia 22152

15616/3011B

Gentlemen:

Your letter, dated above, submitting the following items for approval has been reviewed.

- [X] Shop Drawings
- [ ] List of Materials
- [ ] Catalog Material
- [ ] Samples
- [ ]

The listed items, subject to contract requirements and comments, are returned:

- [ ] Approved
- [ ] Not Approved
- [X] Approved as noted
- [ ] For Resubmittal as noted
- [ ]

MANUFACTURER AND DESCRIPTION	MFG. IDENTIFICATION	GSA NUMBER ASSIGNED
Boiler Feed and Deaerator Feed Pumps by Worthington	MCI Submittal No. 301-1	Approved as Noted

Sincerely,
Harry D. Lee
Construction Engineer

SH&G Submittal System – Contractor's Copy

Contractor's Name _____ Address _____ State _____ Mail Date 11-4-85

Type	Project No.	Contr. Suffix	Spec. Section	Page	Line	Actual Date In	Prom. Date Out	Manufacturer / Supplier
1	2 8	9 14	15 21	22 24	25 26	27 32	33 38	39 62
A	[illegible]	[illegible]	15646	301	43	[illegible]	[illegible]	[illegible]

Type: A - Add, R - Resubmit

C.A. Name: [illegible]

101785

Discipline Routing (63 65 / 66 68 / 69 71 / 72 74 / 75 77): 4

Responsibility (78 80): 4

Routing Order

Checkers Name: [illegible]

Distribution

1. EDP ☐ KP & KV

REVIEWED BY [illegible]

1	Dup. Card3 2-26	Ref. No. 27 30	Type 31 33	Description 34 69		
4		1	[illegible]		2	
4		2	[illegible]		1	2
4		3	[illegible]		X 2	2
4			[illegible]			
4		4	[illegible]		X 2	2
4			[illegible]			
4		5	[illegible]		1	1
4			[illegible]			
4		6	[illegible]		1	1
4			[illegible]			
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RECEIVED OCT 22 1985

7-2-75

Page 1 of Pages

SH&G Submittal System – Add/Resubmit Form

Logged

MCI CONSTRUCTORS, INC (Contractor's Name) 7649 DYNATECH CT, SPRINGFIELD VA 22153 (Address, State) 10-4-85 (Mail Date)

Type	Project No.	Contr. Suffix	Spec. Section	Page	Line	Actual Date In	Prom. Date Out	Manufacturer / Supplier
1	2 8	9 14	15 21	22 24	25 26	27 32	33 38	39 62
A	13155	C	15616	301	13			WORTHINGTON

Type: A Add, R Resubmit

C.A. Name: E. MEDLING

Discipline Routing (63 65 / 66 68 / 69 71 / 72 74 / 75 77) Responsibility (78 80)

Routing Order

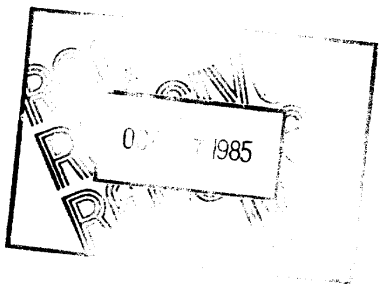
Checkers Name

Distribution

1. EDP ☐ KP & KV

REVIEWED BY: CHERYL HERBERICH

Dup. Card3	Ref. No.	Type	Description
1 2-26	27 30	31 33	34 69
4	1	LTR	MCI CLARIFICATION LETTER
4	2	CC	SIEMENS-ALLIS NEMA SIZE MOTORS
4	3	CC	TYPICAL MOTOR DATA - CONDENSATE
4			RECEIVER P-1 AND P-2
4	4	CC	MOTOR DIMENSIONS - CONDENSATE RECEIVER
4			P-1 AND P-2
4	5	CC	TYPICAL MOTOR DATA-BOILER FEED PUMP
4			P-2 DEAERATOR 1 AND 2
4	6	PCT	14 LLR-7 VOLUTE PUMP ELEVATION
4			DWG NO YX-10 1756 BOILERFEED PUMP P-2
4			DEAERATORS 1&2
4			
4			
4			
4			



7-2-75

MCI CONSTRUCTORS, INC.

7649 Dynatech Court
Springfield. Virginia 22153

Address replies to:
P O Box 2786
Springfield. Virginia 22152

Telephone (703) 569-8010
TWX 710-831-0333 MCI ALE

CLIENT: General Services Administration

PROJECT: CIA Headquarters Expansion
Bid Package 3 - Powerhouse Modifications

SUBMITTAL DATE: October 4, 1985

SUBMITTAL NUMBER: 113

SPEC. SECTION: 15616 VENDOR: Worthington

EQUIPMENT DESCRIPTION: Boiler Feed and Deaerator Feed (Condensate Receiver) Pumps

STATUS: Approved for submittal as clarified

C.Q.C. REPRESENTATIVE: B F

Brian J. Fleming

VARIATIONS AND CLARIFICATIONS

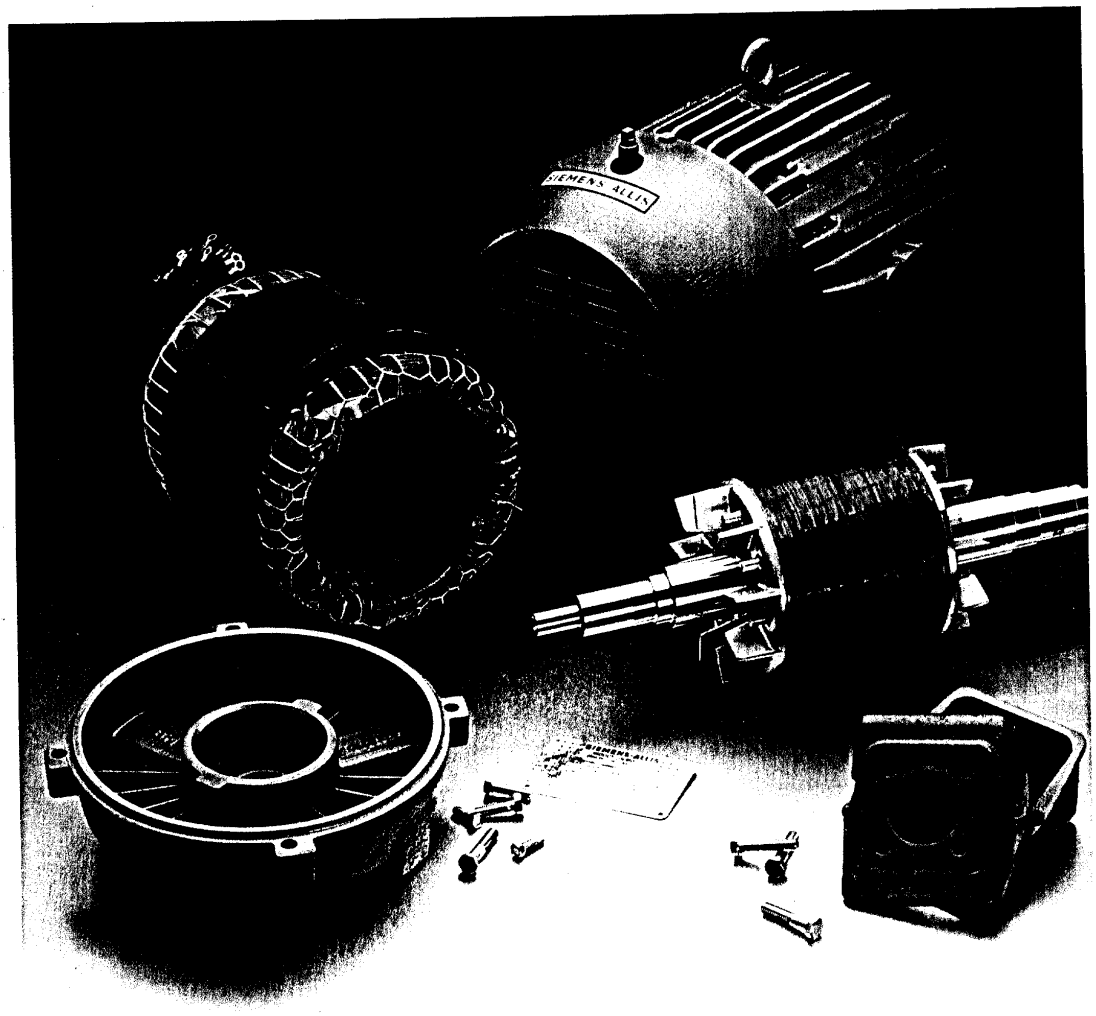
1. This submittal applies to the boiler feed and deaerator feed (condensate receiver) pumps as per Specification Section 15616, Paragraph 14.

2. Note that this submittal is additional information to the partial submittal package Number 111. This additional information should complete the previous submittal package Nubmer 111.

SIEMENS-ALLIS

Efficient and Dependable

NEMA Size Motors



More of a motor... and more than a motor Siemens-Allis promises you...

Motors receiving final quality assurance audit at Small Motor Division, Little Rock. Ark. . . . with a heritage of energy saving designs, time proven durability, dedication to superior quality, and total commitment to customer satisfaction.

Cast iron construction
At Siemens-Allis, cast iron construction is basic to our philosophy of building performance and durability into every NEMA size motor we make. Cast iron is strong and corrosion resistant. Cast iron is distortion free. Cast iron forges the industry standard in what a motor should be. Yet, it's only one part of the Siemens-Allis total value story.

More quality features, inside and out
Siemens-Allis motors are a combination of features and materials carefully engineered to provide a reliable, efficient, long lasting motor. High capacity ball bearings, dynamically balanced rotor assemblies, copper windings, superior insulation and more . . . each component is an example of outstanding design and workmanship. Each is an example of added value from Siemens-Allis that is anything but common in motor construction today.

Total customer service... dedicated to "the customer comes first"
Indeed we do care about our customers at Siemens-Allis. Because, even though our motors are respected and reliable emissaries in their own right, they can't get from here to there without a "thank-you" along the way. In expediting quotations... in meeting shipment dates... in seeing that your motor is installed properly and doing an efficient job . . . Siemens-Allis is dedicated to total customer service every step of the way. People reliability, you might say, to match our motors. We even rate ourselves on how we are doing — knowing that your rating is the one that really counts.

Not just salesmen, sales engineers
When you're investigating a motor, Siemens-Allis believes you should be talking to an individual who knows how it works. A highly trained specialist to help you match the drive to the job. Our sales engineers have the knowledge and experience to help you solve any application, design or installation problem. Large or small.

Efficiency in operation now and in the future — when it's needed most
Siemens-Allis motors are engineered to be tough on the job, yet run so efficiently that you'll be surprised at your energy savings. The differences Siemens-Allis gives you adds up to more motor for the money and more savings for the long run.

Iron clad standards of quality assurance
In addition to incorporating quality materials, each Siemens-Allis motor undergoes more than 100 separate quality inspections before it leaves our plant. We care, you see, about the motors we make. And we care about the people we are making them for. It's this extra dimension of people-to-people responsibility that helps put the extra reliability in Siemens-Allis motors.

1 Distortion-free yoke and bearing housing: Rugged, distortion-free, cast iron, holds bearings in rigid alignment. Assures all around protection against physical damage.

2 Solid cast rotor: Practically indestructible and dynamically balanced for smooth rotor operation and reduced vibration and noise.

3 Copper windings: Less heat, less resistance . . . highly efficient and stingy on energy usage for economical operation.

4 Stainless steel nameplates: Highly visible, provides complete motor ratings for quick reference. Resists corrosion to maintain lasting legibility.

5 Superior insulation: Non-hygroscopic system provides efficient thermal endurance to ensure long life.

6 Quality bearings — double-shielded: Regreasable in service for quiet and long lasting operation.

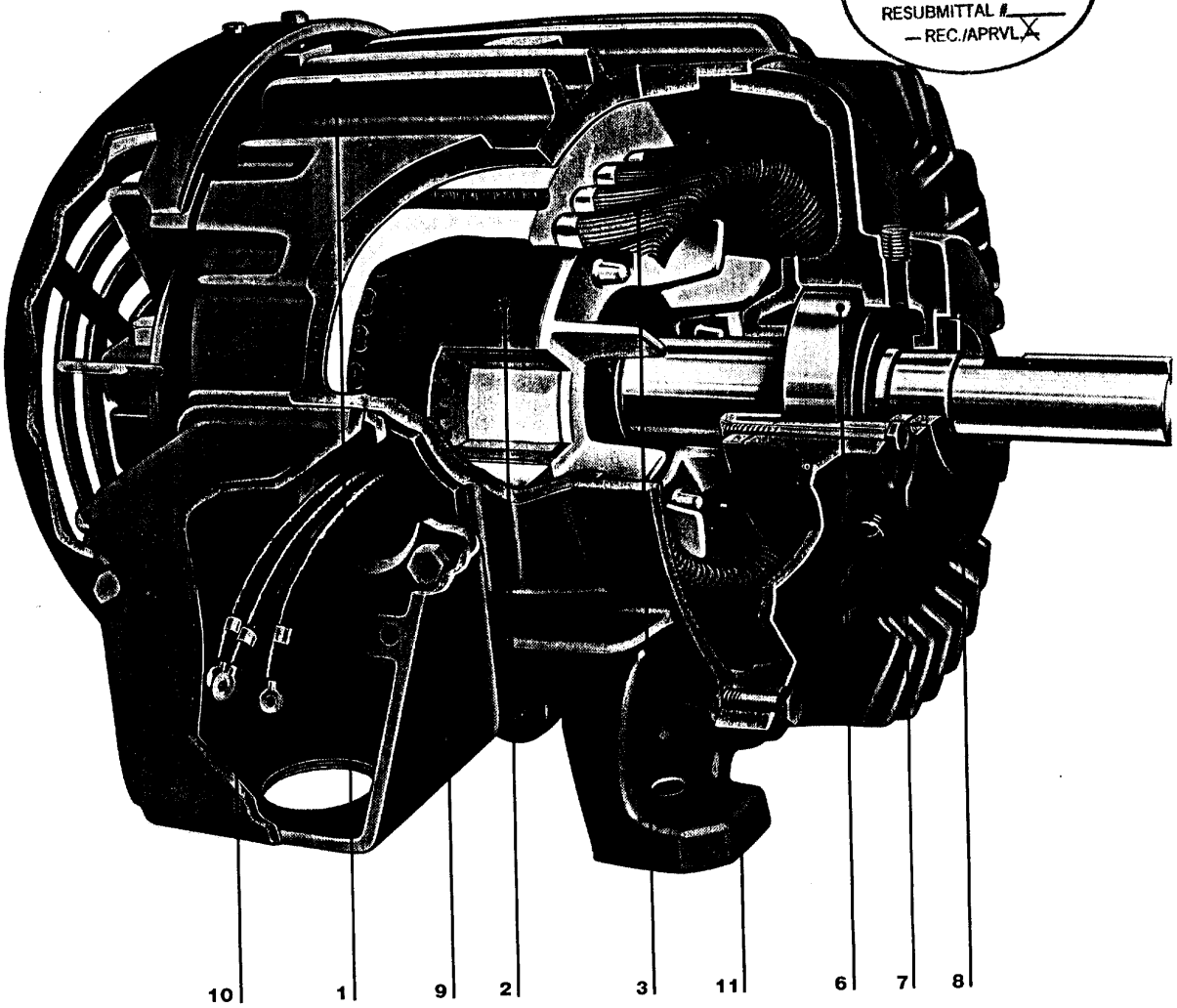
7 Corrosion-resistant hardware: All standard hardware are zinc coated, hex head screws.

8 Epoxy enamel external finish: Tough, protective — an added measure to resist corrosion in a hostile environment.

9 Large cast iron conduit box: Bigger than the industry average. Conduit box can be located on either side of the motor.

10 Lead terminals attached: No-hassle motor installation at no extra cost.

11 Integrally cast feet: Cast as one piece with frame to provide rigid, and distortion free mounting.



SIEMENS-ALLIS

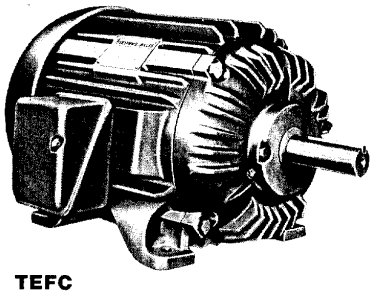
Medium Motor & Generator Division
4620 Forest Avenue
Norwood, Ohio 45212

Small Motor & Generator Division
14000 Dineen Drive
Little Rock, Arkansas 72206

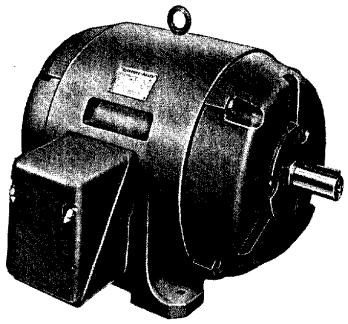
Note: 1 to 100 horsepower size motors are manufactured at the Little Rock location and 100 to 10,000 horsepower, 404T frame and larger size motors are manufactured at the Norwood location. PE-21 Premium Efficiency motors are available thru 250 horsepower.

Efficient and Durable Motors that Meet the Challenges of Tomorrow

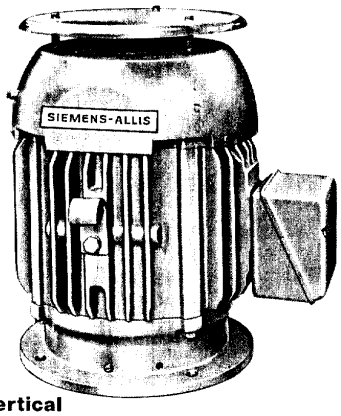
Designing and building motors with cost saving benefits to the user, not for days, but decades is our strength. And if high efficiency is one of your leading priorities, our PE-21 motor designs offer energy savings levels that rival the industry's best.



TEFC
Complete line of NEMA Totally Enclosed motors provided with premium features as standard. Cast iron construction, copper windings, over sized bearings, sophisticated insulation systems, make these motors unparalleled in the industry.

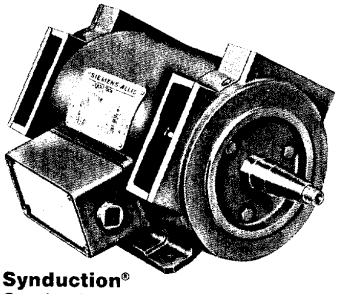


Open drip-proof
Drip-proof motors designed with the user in mind. Featuring premium motor material not commonly provided as standard. Rugged, distortion-free cast iron holds bearings in rigid alignment.

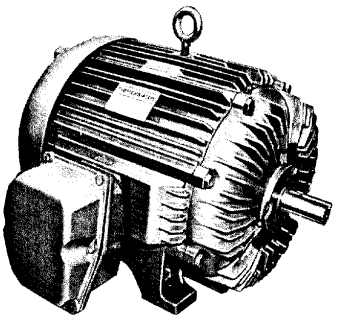


Vertical
Vertical solid shaft "P" base and In-Line pump motors feature all cast iron construction and generously sized bearings for thrust and load capabilities required for long trouble free operation of critical industrial process.

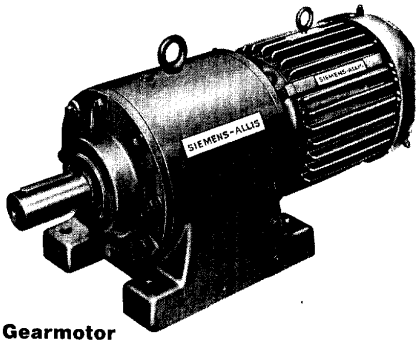
Severe duty and explosion-proof designs are also available.



Synduction®
Synduction motors provide practical, economical synchronous speed with simplicity of the induction motor. Synduction motors are ideal for industrial systems using adjustable frequency speed control and coordination.



Explosion-proof motor
Broad range of NEMA triple-rated Underwriters Laboratories approved. Explosion-proof motors readily available. Can be customized to meet the added requirements for severe corrosive atmosphere applications.

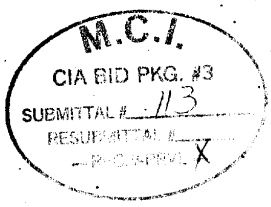


Gearmotor
Gearmotors incorporate all cast iron construction of gear case and motor. High precision, case hardened gears, oversized shafts and extra large lubricant reservoir provide strength, durability, quiet operation and maximum efficiency.

M-3086-02

CONDENSATE RECEIVER
P-1 & P-2

SIEMENS-ALLIS



TYPICAL MOTOR DATA

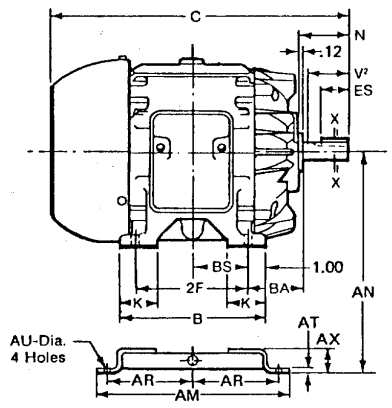
CUSTOMER Worthington-Dresser REF. P.O. Y-750632-35

MANUFACTURER Siemens-Allis REF. S.O. C1-69136

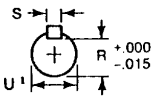
Item	1
Type	RGZ-AD
Frame	254U
HP	7.5
RPM (Sync.)	1800
RPM (FL)	1740
Volts	460
Phase	3
Hertz	60
Insulation	F
Service Factor	1.0
Efficiency:	
1/2	82
3/4	83.5
FL	84.0
Power Factor:	
1/2	69
3/4	79
FL	84
Full Load Amps	10.4
Locked Rotor Amps	60
Torque:	
Full Load	22.7
Locked Rotor	39.8
Max. Run	49.0
Weight	285 lbs.

Comments

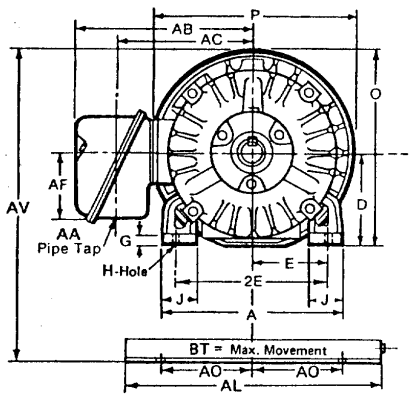
Antifriction Bearing (Belted or Direct Connection)
FRAMES 182-256U



NOTE:
Conduit Boxes for 140 and 180 Frames are rectangular in shape — not diagonally split.



SECTION "XX"



STANDARD DIMENSIONS — IN INCHES

FRAME	182	184	213	215	254U	256U
A	9.0	9.0	10.5	10.5	12.5	12.5
B	6.5	7.5	7.0	8.5	10.2	12.0
C	13.9	14.9	17.7	19.2	21.1	22.9
D	4.50	4.50	5.25	5.25	6.25	6.25
E	3.75	3.75	4.25	4.25	5.00	5.00
2E	7.50	7.50	8.50	8.50	10.00	10.00
2F	4.50	5.50	5.50	7.00	8.25	10.00
G	.5	.5	.7	.7	.8	.8
H	.41	.41	.41	.41	.53	.53
J	1.8	1.8	2.0	2.0	2.4	2.4
K	—	—	—	—	2.8	2.8
N	2.4	2.4	3.1	3.1	3.9	3.9
O	9.8	9.8	10.9	10.9	12.9	12.9
P	9.7	9.7	11.2	11.2	13.4	13.4
U¹	.875	.875	1.125	1.125	1.375	1.375
V²	2.00	2.00	2.75	2.75	3.50	3.50
AA	.75	.75	1.00	1.00	1.25	1.25
AB	6.5	6.5	8.6	8.6	10.2	10.2
AC	5.5	5.5	7.0	7.0	8.2	8.2
AF	1.4	1.4	2.5	2.5	3.5	3.5
AL	12.8	12.8	15.0	15.0	17.8	17.8
AM	9.5	10.5	11.0	12.5	15.1	16.9
AN	6.00	6.00	7.00	7.00	8.25	8.25
AO	4.50	4.50	5.25	5.25	6.25	6.25
AR	4.25	4.75	4.75	5.50	6.62	7.50
AT	.13	.13	.16	.16	.19	.19
AU	.50	.50	.50	.50	.62	.62
AV	11.3	11.3	12.6	12.6	14.9	14.9
AX	1.50	1.50	1.75	1.75	2.00	2.00
BA	2.75	2.75	3.50	3.50	4.25	4.25
BS	2.25	2.75	2.75	3.50	4.12	5.00
BT	3.0	3.0	3.5	3.5	4.0	4.0
S	.188	.188	.250	.250	.312	.312
R	.781	.781	1.000	1.000	1.219	1.219
ES	1.38	1.38	2.00	2.00	2.75	2.75
Approx. Ship. Wt. Lbs.	85	100	130	162	250	285

Conduit box can be turned in steps of 90°. When conduit box is to be located on opposite side, (F-2 Assembly) same dimensions apply.

For direct connection, 1/32" shims may be necessary under feet.

¹ Shaft limits for dimension U: up through 1-1/2" diameter, + .0000 — .0005"; above 1-1/2" diameter, + .000 — .001".

² Shaft length available for coupling, pinion or pulley hub.

CONDENSATE RECEIVER
P-1 & P-2

CERTIFICATION

CUSTOMER Worthington Pump Div.
P.O. Y-750632-35 ITEM 1
S.O. C1-69136 ITEM 1
HP 7.5 RPM 1800 FR. 254U
PH/HZ/VOLTS 3/60/460
BY Joe Varacalli DATE 9/20/85

NOT FOR CONSTRUCTION, INSTALLATION OR APPLICATION PURPOSES UNLESS CERTIFIED

M.C.I.
CIA BID PKG. #3
SUBMITTAL # 113
RESUBMITTAL #
APPROVAL X

DEAERATOR 1 & 2
P-2

SIEMENS-ALLIS

TYPICAL MOTOR DATA

CUSTOMER Worthington-Dresser REF. P.O. Y-760632-35

MANUFACTURER Siemens-Allis REF. S.O. C1-69136

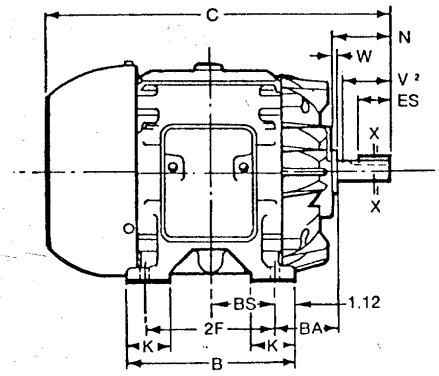
Item	2
Type	RGZ
Frame	324S
HP	25
RPM (Sync.)	3600
RPM (FL)	3530
Volts	460
Phase	3
Hertz	60
Insulation	F
Service Factor	1.0
Efficiency:	
1/2	82
3/4	86
FL	87
Power Factor:	
1/2	85
3/4	90
FL	91
Full Load Amps	31
Locked Rotor Amps	182
Torque:	
Full Load	37.2
Locked Rotor	55.8
Max. Run	74.5
Weight	565

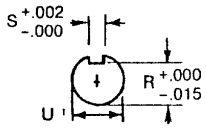
M.C.I.
CIA BID PKG. #3
SUBMITTAL # 113
RESUBMITTAL #
REC./APRVD.

Comments _____

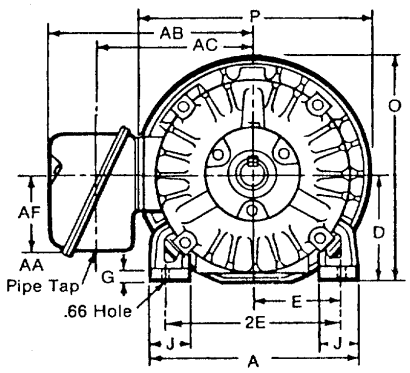
SIEMENS-ALLIS, INC.

Antifriction Bearing (Direct Connection)
FRAMES 324S - 365US





SECTION XX



STANDARD DIMENSIONS — IN INCHES

Frame	324S	326S	364US	365US
A	16.0	16.0	18.0	18.0
B	12.8	14.2	13.5	14.5
C	25.8	27.2	28.8	29.8
D	8.00	8.00	9.00	9.00
E	6.25	6.25	7.00	7.00
2E	12.50	12.50	14.00	14.00
2F	10.50	12.00	11.25	12.25
G	.9	.9	1.0	1.0
J	3.2	3.2	4.0	4.0
K	2.8	2.8	3.0	3.0
N	3.38	3.38	4.12	4.12
O	16.6	16.6	18.2	18.2
P	17.1	17.1	18.5	18.5
U ¹	1.625	1.625	1.875	1.875
V ²	3.00	3.00	3.50	3.50
W	.12	.12	.38	.38
AA	2.00	2.00	3.00	3.00
AB	13.9	13.9	17.0	17.0
AC	10.8	10.8	13.2	13.2
AF	5.0	5.0	6.2	6.2
BA	5.25	5.25	5.88	5.88
BS	5.25	6.00	5.62	6.12
S	.375	.375	.500	.500
R	1.416	1.416	1.591	1.591
ES	1.88	1.88	2.00	2.00
Approx. Ship. Wt. Lbs.	565	600	830	885

Conduit box can be turned in steps of 90°. When conduit box is to be located on opposite side, same dimensions apply.

For direct connection, shims may be necessary under feet: 1/32" when dimension D is 8" or less; 1/16" when D is greater than 8".

¹ Shaft limits for dimensions U +.000 -.001".

² Shaft length available for coupling, pinion or pulley hub.

CERTIFICATION

CUSTOMER Worthington Pump Div.
P.O. Y-750632-35 ITEM 2
S.O. C1-69136 ITEM 2
H.P. 25 RPM 3600 FR. 324S
PH/HZ/VOLTS 3/60/460
BY Joe Varacalli DATE 9/20/85

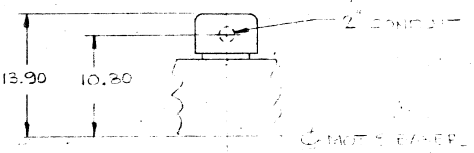
DEAERATOR 1 & 2
P-2

M.C.I.
CIA BID PKG. #3
SUBMITTAL # 113
RESUBMITTAL #
APPROVED X

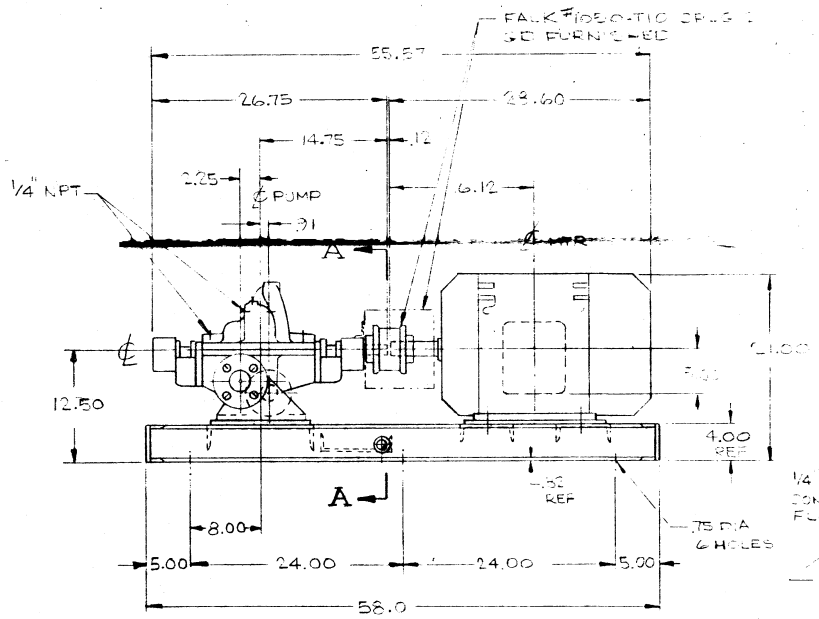
NOT FOR CONSTRUCTION, INSTALLATION OR APPLICATION PURPOSES UNLESS CERTIFIED

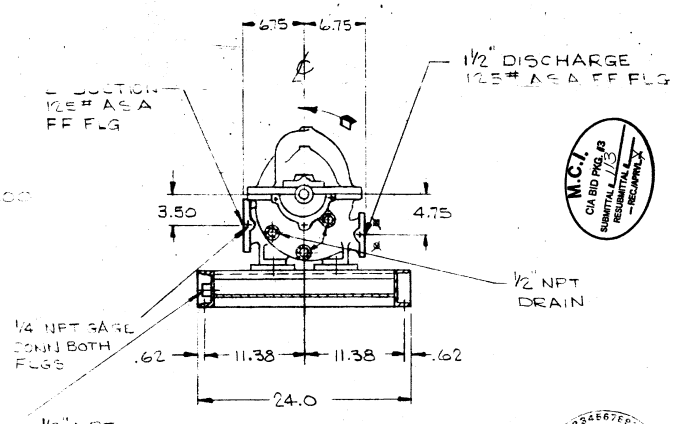
YX-101756

DRIVER: SYNCHRONOUS MOTOR
125HP @ 3600 RPM
3/60/460



PUMP ROTATION
COUNTER CLOCKWISE WHEN
VIEWED FROM COUPLING END





— SECTION A-A —

REAERATORS #1 & #2
P-2

M.C.I. CIA BID PKG #3 SUBMITTAL # 1/3 RESUBMITTAL # 1 RECEIVED

RECEIVED MCI REVIEW SECTION

CORRECT FOR CUSTOMERS ORDER 28755
CUSTOMER MECHANICAL CONSTRUCTORS, INC.
DISTRICT OFFICE ORDER 147-5109 WORK ORDER 60-750632
CERTIFIED BY Samuel G Bradley DATE 9/26/85

Dimensions are from drawings, castings may vary slightly. Foundation bolts must not be fixed rigidly until machine is in place. This print is loaned subject to return on demand and under condition that it is not to be used in any way detrimental to our interests. Do not scale; additional dimensions will be furnished upon request.

ALT. DATES

1½ LLR-7 VOLUTE PUMP ELEVATION

WORTHINGTON GROUP, McGRAW-EDISON COMPANY
HARRISON, NEW JERSEY 07029

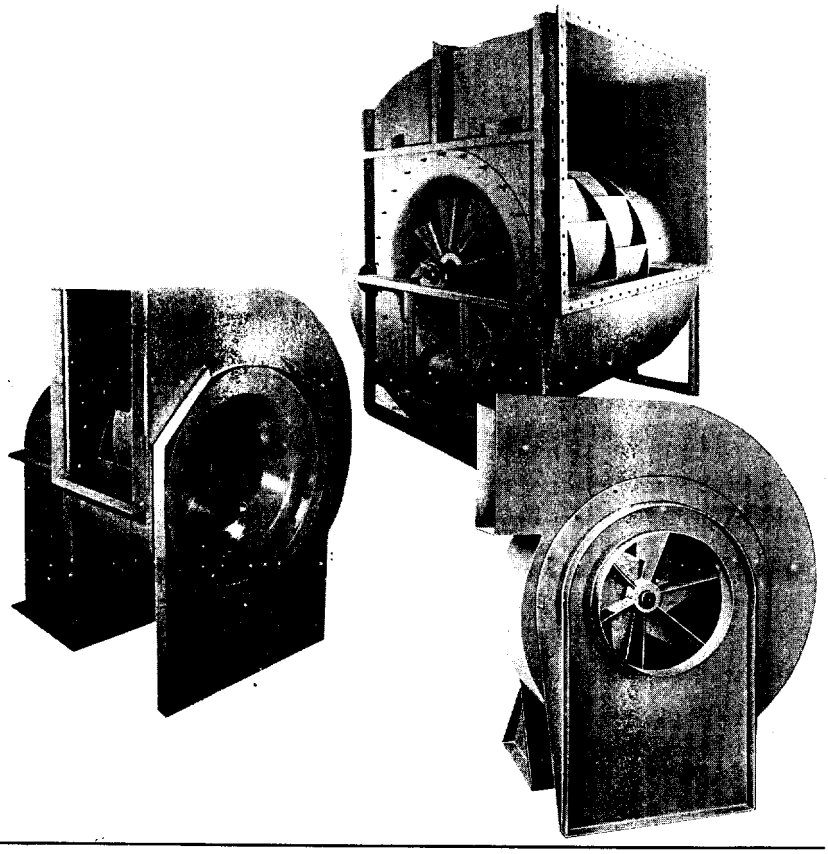
ORDER 60-750632 DATE 9-24-85 SCALE 1½" = 1 FT

DRAWN	CHECKED	APPROVED	
EAP	GW	CW	YX-101756

WN 718

INSTALLATION, OPERATION and MAINTENANCE INSTRUCTIONS

AIR TECHNOLOGY, INC.
SUCCESSOR TO THE ASSETS OF
CHAMPION BLOWER & FORGE INC.



CHAMPION
BLOWER & FORGE, INC.

300 RICHARSON DRIVE, LANCASTER, PENN. 17603
100 W. CENTRAL, ROSELLE, ILLINOIS 60172

INTRODUCTION

Champion Blower & Forge, Inc. designs and manufactures equipment for the purpose specified. The receipt, handling, installation, maintenance, and safety precautions of such equipment is the responsibility of the purchaser. The fan which you have purchased, as a rotating piece of machinery, can become a source of danger to life, and can cause injury if not properly applied. Operating and Maintenance Personnel should be warned of the potential hazards. At no time should the maximum speed or operating temperature, for which the fan is designed, be exceeded.

It is advisable to have the installation and initial start up of the equipment supervised or checked by personnel experienced in such work and equipment. Personnel trained in such services are available at Champion Blower & Forge, Inc., and arrangements for such service can be made through your local representative, or at the Company's headquarters office.

These instructions are intended to supplement good erection techniques and are not to be considered as covering all possible conditions. Because of necessity, these instructions are general in nature.

SHIPMENT & RECEIVING

Champion Blower & Forge, Inc. has thoroughly inspected the equipment at its factory and prepared same for shipment in accordance with the uniform freight classification followed by all carriers. It should be in perfect condition when received, unless damaged in transit. Upon acceptance by the Carrier, as evidenced by a signed Bill of Lading, the Carrier accepts responsibility for all damage or shortages, whether concealed or evident. Claims covering shortages or damage must be made to the Carrier by the Purchaser. Any shortage or damage should be noted on the delivery receipt, and inspection should be requested by the Carrier for all damage, whether evident or concealed.

HANDLING

During unloading and handling, care must be exercised to prevent damage or distortion which may make installation difficult or affect the operation of the unit. The various parts are designed with sufficient strength for operating conditions, but when not unitized, may be damaged by rough handling.

Most fans are usually shipped completely assembled, on skids, or crated, as required. When moving or handling these units, good rigging techniques should be applied, avoiding any concentrated stresses that may distort any of the parts.

If necessity, some larger size fans are shipped partially or completely disassembled. The various components must be handled with extreme care. Particular attention must be given to fans with special coatings, as any damage to the coating will destroy the value of the coating.

The rotor assembly has been designed to be supported by the shaft, and should be lifted by slings around the shaft, as close as possible to the hub on each side of the wheel. Slings should not press against the side plates of the wheel, as this may damage and distort the wheel. A spreader bar should be used. The rotor should never rest on the side plates or blades, nor should the rotor be lifted by any components of the fan wheel. To do so may damage the rotor assembly, and destroy the dynamic balance that is necessary for vibration free operation.

If this balance is destroyed, rebalancing of the rotor assembly will be necessary. Normal eccentricities and runout of the rotating assembly have been factory inspected and are within commercial tolerances. They have no influence on balance or performance. If the wheel and shaft have not been assembled, the fan wheel may be lifted by a timber or wrapped bar passed through the hub. The finished bore of the hub must be protected from damage. Also the finished hub and bearing surfaces of the shaft must be protected from damage.

When handling the housing and other parts of this equipment, good rigging techniques should be applied. Avoid any concentrated stresses that will cause distortion and damage. Use of spreader bars is recommended.

STORAGE

Storage sites should be chosen on the basis of levelness and sturdiness to prevent undue stress or permanent unit distortion. Outside storage of equipment requires special methods of protection for bearings and rotating components against moisture, abrasives and corrosion. Fan wheels need not be secured to prevent wind rotation. Bearings should be completely filled with lubricant and then encased in water-repellent, lint-free jackets. The entire fan unit should be enclosed by tarps or plastic cover-all.

Equipment stored under such conditions requires periodic inspection to prevent deterioration, i.e., the oxidation of lubricants, paints or special service coatings, or the rusting of machine finished surfaces.

When fans are stored or warehoused for a period of time, bearings should be periodically rotated by hand and kept filled.

ERECTION INSTRUCTIONS

The dimensions and details of the fan base are shown on the customer's drawing which has been supplied. These should be

studied carefully. The fan should be mounted on a rigid and substantial foundation. Reinforced poured concrete is recommended. The foundation should be at least five to six times the weight of the fan it supports. It is desirable that the bottom of the foundation be longer and wider than the top. If sides are vertical, substantial footings are desirable. When designing foundations, at least 3/4" should be allowed for grouting.

Anchor bolts of suitable size, preferably in pipe sleeves to allow for minor bolt adjustment, should be accurately located before the concrete is poured. Allow 1" to 1-1/2" extra when determining bolt length to allow for grout, levelling, washers, nuts, etc.

If fans are to be installed above the ground, the same 5 to 1 ratio applies. A rigid support should be supplied sufficient to support the equipment and absorb any vibration that might develop. If possible, installation should be on or near walls, beams, or supporting columns.

INSTALLATION

UNITS SHIPPED COMPLETELY ASSEMBLED-

Remove skids and all other packing materials.
Move fan to its location and mount on foundation, on anchor bolts.
Level unit with a spirit level, by shimming as required.
Tighten nuts on anchor bolts, after installing flat and lock washers.
Grout unit if required.

UNITS SHIPPED PARTIALLY ASSEMBLED-

Because of shipping restrictions, units may be shipped with the lower half of the housing containing the wheel, shaft and bearings assembled as a unit, but with the top half of the housing removed. Items such as Motors, V-belt Drives, Dampers, etc. may be shipped separately.

Remove skids and all other packing materials.
Move lower half to its location and mount on foundation on anchor bolts.
Level unit with spirit level, by shimming as required.
Tighten nuts on anchor bolts, after installing flat and lock washers.
If motor is to be mounted, place motor in position on base, align, shim if necessary, and bolt down.
If V-belt drive is required, assemble sheaves to proper shafts and line up belts with proper tension.
Lower top half of housing onto bottom half of housing. Be careful not to damage either fan wheel and shaft, or inlet cone(s).
Install outlet damper if required.
Grout unit if required.

Duct work must be properly designed for efficient fan operation. For operation at temperature, or with spring isolation, flexible

'pansion joints should be installed in both the inlet and outlet duct. ıless fan is specially designed for same, flues, ducts, silencers, etc., must not be supported by the fan housing. To do so may cause housing distortion and loss of proper running clearance between the fan wheel and inlet cones.

V-BELT DRIVES

The proper installation and alignment of V-belt Drives is very critical to proper fan operation. If drives have been installed at the factory they should be checked before operation. Place a straight edge or taut string across the faces of the sheaves to check alignment. The shafts of the fan and motor must be parallel. Belts must run straight. Check that keys are in keyways and that locking set screws are tight.

If drives have been shipped not mounted to fan, motor and fan shafts must be cleaned of all rust, dirt, burrs, nicks, grease, etc. Also the bores of the sheaves. Install fan and motor sheaves on the appropriate shafts. Install belts. Do not roll belts or force belts over the grooves with a tool. Instead, move motor so that belts can easily be installed. Align motor and fan shafts using a straight edge or taut string against the faces of the sheave. Shafts should be parallel. Check that keys are in keyways and sheave set screws are tight. Adjust belts by moving motor on its base. Use belt tension meter or check when running to see that a slight bow is on the slack side of belts. If belts squeal, this indicates slippage which should be eliminated by tightening belts. Be careful not to make belts too tight, as this could cause undue bearing wear. Variable speed sheaves are usually shipped from the factory at approximately the center of the speed range. The pitch should be varied only to change ıeed and never to adjust belt tension. Adjust belt tension by ıoving the motor on its base.

OPERATION OF EQUIPMENT

1. Check that bearings are properly aligned and lubricated, with special attention to the locking collars and set screws, cleanliness, and possible corrosion.
   Recommendations of bearing manufacturer should be followed concerning proper lubrication procedures. Bearing instructions are usually supplied with fans. If not received, or if lost, contact the factory for such instruction.
2. Check set screws and keys in wheel.
3. Check foundation bolts and other hardware for tightness.
4. Check housing, duct, etc., for foreign objects.
5. Check that all access doors are secure.
6. Recheck wheel/inlet cone clearance. Turn wheel by hand, make sure it rotates freely.

7. If equipped with damper or inlet volume controls, close same to lessen starting load on motor.
8. Bump unit to check for proper rotation.
9. Start unit. Follow instructions of motor and starter manufacturer.
10. Allow unit to come up to speed. Turn off. Check for any unusual noise or mechanical action. If any are noticed, locate and correct.
11. Recheck tightness of all set screws, keys, and hold down bolts. The initial start up will tend to relieve these and they may require re-tightening.
12. On sleeve bearings, check oil rings through inspection caps when unit is running. The rings should rotate freely and carry oil.

Once it has been determined that unit is operating satisfactorily, it should be operated, if practical, for at least eight hours. Operation should be monitored at least once each hour during this period. Check should be made for any change of operation during this period. Some bearings will have to "run in" and will heat up during this period. If the bare hand can be held on the bearing cap for five seconds, there is no cause for alarm.

MAINTENANCE

For trouble free operation and long life, frequent and regular checks should be made of the lubrication of bearings and couplings. These must be maintained and lubricated as recommended by the manufacturer.

At least three times a year the unit, and particularly the rotating parts, should be checked for wear. In dirty atmospheres, inspection should be more frequent, and particular attention should be paid to possible erosion.

In the event excessive vibration is noted, check for the following possibilities:

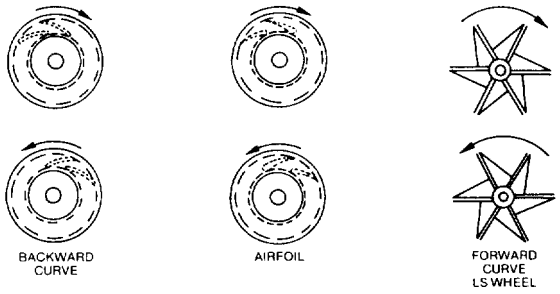
1. Build up of dirt on wheel.
2. Bolts loose on motor, housing or bearings.
3. Drives out of alignment or belts loose.
4. Improper bearing alignment or clearance.
5. Improper coupling alignment.
6. Wheel not tight on shaft.
7. Wheel, shaft and bearings are damaged from foreign object.
8. Is vibration from other than the fan?
9. Check clearance between wheel and inlet cones.

If the fan is to be idle and not operated for an extended period of time, bearings should be protected as recommended by the manufacturer. Shaft should be turned in the bearings at frequent intervals to prevent corrosion of the bearings. Exposed machined surfaces should be covered with a protective coating to prevent corrosion and damage.

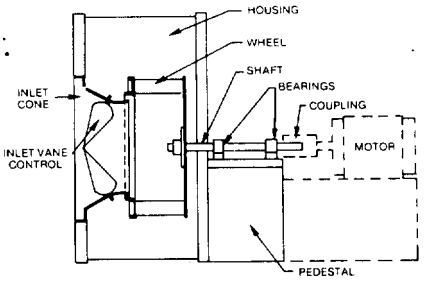
SPARE PARTS

Spare parts may be ordered from Champion Blower & Forge, Inc., by mentioning part name (wheel, shaft, bearings, etc.,) and the FAN SERIAL NUMBER. Due to the small number of parts which might require replacement, spare parts lists are neither necessary nor available.

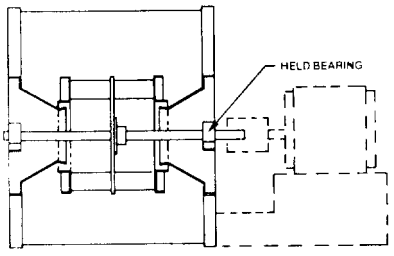
WHEEL ROTATION VIEWED FROM DRIVE SIDE



TYPICAL FAN ARRANGEMENTS



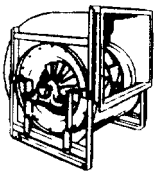
TYPICAL OF ARR 1, 2, OR 9 (ARR 8 DOTTED)

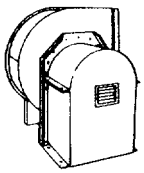


TYPICAL OF ARR 3 DIDW (ARR 7 DOTTED)

PRODUCT LINE

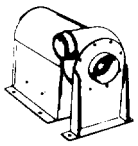
Design Eleven Centrifugal AirFoil Fans thru class 5 construction 22500 FPM tip speed. Built in 23 sizes and all arrangements.

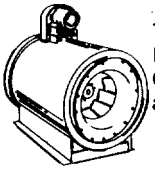




Vent-Pak available in sizes 122 thru 542 to 30 Inlet Vanes and most Centrifugal Fan Accessories available.

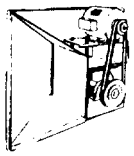
Cast-Iron Pak in 7 sizes complete with motors & drives. Special metal wheels and coatings available.

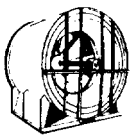




Tubular Centrifugal Fan. Built in 20 sizes through Class 3 construction. All accessories are available.

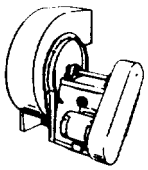
Plug-Pak built in 16 standard sizes 12¼ inch nominal wheel diameter thru 54¼ inch nominal wheel diameter. Units built thru Class III. Special motor and high temperature Plug-Paks available on application.

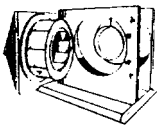




Champion-dryer inline fan in 23 sizes 122 through 1087. Three different discharge positions are available. Special metal wheels and coatings are also available.

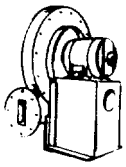
Industrial Exhausters arrangement 1, 4, 9, 9H, 10 complete with all accessories to 84" wheel dia.

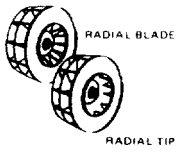




Quick access centrifugal airfoil fans built in 10 sizes 200 thru 490 to 50 HP. Provides easy access to fan interior for cleaning. Ideally suited for paint booth exhaust systems.

Turbaire Pressure Blower 4 thru 32 oz. pressure range to 100 hp arrangement 4. Special units available upon application.





Heavy duty fans on application. Both radial blade fans and radial tipped bladed fans can be furnished.

CHAMPION BLOWER & FORGE INC.

100 W. CENTRAL, ROSELLE, ILLINOIS 60172 • 312-529-2060
300 RICHARDSON DRIVE, LANCASTER, PENN., 17603 • 717-397-6171

SALES OFFICES IN ALL PRINCIPAL CITIES

LICENSEES

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6647 P.E. LAMARCHE
MONTREAL 458, QUEBEC
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